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Abstract

We develop entrepreneurship and institutional theory to explain entrepreneurial growth aspirations across individuals and institutional contexts. Our framework generates hypotheses at the national level about the negative impact of higher levels of corruption, weaker property rights and greater government activity on entrepreneurs' aspirations to increase employment. Also we explore whether, at the micro level, knowing other entrepreneurs compensates for weaknesses in institutions. We test these hypotheses using the Global Entrepreneurship Monitor surveys in 42 countries for 2001-2006, applying a multilevel estimation framework. We find support for our main hypotheses but intellectual property rights are found to have no explanatory power.

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1. Introduction

Baumol (1990, 1993) proposed that the allocation of entrepreneurial talent between productive, unproductive and destructive activities will be national-context specific and related to the character of institutions (see also Batjargal, 2003; Hwang and Powell, 2005; Sobel, 2008; Boettke and Coyne, 2009) though there is less consensus about which institutions are important (Desai et al, 2003; Acs et al., 2008). Moreover, the institutions favouring self-employment or very small firms might be different to those underpinning the formation of new ventures which plan to grow to considerable scale. Our attention is on the latter, because of their potential significance for economic growth, development and employment creation (Acs, 2006; Hessels et al., 2008; Minniti and Levesque, 2010, Autio and Acs, 2010). Indeed, a public policy which focuses on promoting entrepreneurship in general but not on high growth firms is likely to be ineffective in enhancing employment. Moreover, differences in entrepreneurial ambitions play a critical role: environmental factors may affect entrepreneurial attitudes and growth ambitions negatively, creating ‘the Upas Tree’ effect (van Stel and Storey, 2004).

The match between theories of entrepreneurship and the empirical testing of hypotheses about its determinants is important because entrepreneurship itself is often measured imperfectly (Parker, 2009). Thus empirical researchers have been sometimes forced to combine a variety of types of entrepreneurs: necessity and opportunity or self-employed, small and medium size enterprises. We agree with Autio (2011: 251) that high growth aspiration entrepreneurship fits best “with the profile of entrepreneurs inferred from economic theories”, and is clearly the group most likely to create jobs and attract the interest of policy makers. However, the literature is surprisingly silent on the determinants of entrepreneur’s growth aspirations and almost no work addresses this important question across institutional contexts. Autio (2005, 2007) provides insights about cross-country patterns of high growth aspiration entrepreneurial activity, its associations with the national entrepreneurial environment, and individual characteristics of entrepreneurs, but does not offer

testable implications regarding their determinants. Bowen and De Clercq (2008) consider the impact of institutions on entrepreneurs' intentions to create larger firms but do not consider micro level factors. Autio and Acs (2010) and Autio (2011) explain entrepreneurs' individual and country level expected employment but each consider only one institution; intellectual property rights (IPR) and low-level regulation respectively.

Addressing this gap in the literature, we therefore develop a framework to analyse how the institutional context, independently and interacting with individual attitudes impact on entrepreneurial ambitions to expand their young businesses to a significant size. On this basis, we derive hypotheses concerning what we consider to be the most important institutional factors influencing entrepreneurial growth aspirations and whether these institutional deficiencies can be mediated by social networks. We test these ideas using multi-level modelling methods on a large cross country cross individual dataset over time comprising a minimum of 2,000 people in each of 42 countries between 2001 and 2006.

Our discussion of institutions augments Williamson (2000) and the ideas of social micro level structures from Granovetter (1985) and DiMaggio and Powell (1991) to identify institutions and social structures of particular significance for the growth aspirations of entrepreneurs¹. We enhance Williamson's "hierarchy of institutions" to identify the fundamental institutions likely to influence growth aspirations. Building on this, we propose three related institutional hypotheses concerning the impact of corruption, the strength of property rights and the size of the government respectively. We also suggest ways that these macro-level structures may be moderated by local social ties, to explore whether local social structures can compensate in situations when institutional contexts are deficient.

¹Thus while our conceptual work is based on new institutional economics theory by North (1990), Baumol (1990) and Williamson (2000), it also incorporates elements of sociological institutionalism (Meyer and Rowan (1977); Granovetter (1985); Powell and DiMaggio (1991); Suchman (1995); Deephouse (1996); Batjargal (2010)).

2. Growth aspirations of entrepreneurs: theory and hypotheses

North (1990) proposed that many of the incentives underlying value-adding behaviour depend on the quality of institutions. He distinguishes between formal institutions, the laws and structures that define the economic incentives guiding individual and organisational choices, and informal institutions, the social arrangements and norms that influence how formal institutions operate in practice. His argument can be applied to entrepreneurial organisations which adapt their strategies to fit the opportunities and limitations defined by their institutional context (Hwang and Powell, 2005; Boettke and Coyne, 2009). Thus, a functional business environment provides positive incentives for entrepreneurs while a weak one is likely to be deleterious (Baumol, 1993; Davidsson and Henrekson, 2002; Harper, 2003; van Stel and Storey, 2004). Delving more deeply into institutions, Williamson (2000) categorises them into a four level hierarchy, each level placing constraints on the ones below. He places informal institutions (customs, traditions and religious norms) -social embeddedness - at the top of the hierarchy because these are the deepest rooted and the slowest changing. This applies to entrepreneurship; for Baumol and Strom (2007) the most economically important example of an institution likely to influence entrepreneurship, is represented by individual, legal and administrative probity², of which corruption is an important (negative) indicator (McMillan and Woodruff 2002; Anokhin and Schulze, 2009).³

Formal institutions are located at the second level down, and here we extend Williamson's (2000) analysis by stressing further the difference between the constitutional foundations of the formal institutional environment and the lower level, detailed regulatory frameworks. Williamson (2000) emphasises that the key "rules of the game" relate to property rights, and Fogel et al. (2006) build on Acemoglu and Johnson (2005) to argue that these constitutional features are especially important for entrepreneurs who need to rely on the security of their residual claims for the returns

² Historically these can be linked to prestige awarded to gentlemanly behaviour and honour (Baumol and Strom, 2007)

³ Williamson's use of the term "embeddedness" differs from the terminology adopted by Granovetter (1985); see our discussion below.

from the organisations that they have created (see also Johnson et al., 1999, 2000; Desai et al., 2003). Entrepreneurs, especially those, whose growth aspirations are high, must raise capital, bear risks and enter new markets and this requires “transactional trust” over a long time horizon (Fogel et al., 2006), which is strengthened by property rights that are stable and effectively enforced.

In turn, the dimensions of regulation relate to the scale and the day-to-day effectiveness of the government apparatus. “Cumbersome regulations and burdensome rules can raise the costs of running new business” and government spending can crowd out private investment (Fogel et al., 2006), which again matters more for high aspirations projects.

More generally, while we see the impact of weak property rights as generating profound uncertainty in the business environment, an extensive government is more appropriately seen as generating additional cost, which remains (relatively) predictable. Williamson (2000) stresses importance of property rights, but merges it with the regulatory environment under his second level of the institutional order that is formal institutions. For us, the distinction between the constitutional level and the regulatory level is important because these affect the growth aspirations of entrepreneurs in a fundamentally different way.

Williamson’s (2000) third level is governance, which shapes the way that individuals interact, aligning the governance structure they adopt with the types of transactions. He places particular emphasis on private governance; for entrepreneurship this refers to the nexus of formal and informal arrangements underlying for example the provision of finance and the development of supply and distribution networks (Gompers and Lerner, 1999). Here we use the sociological perspective to extend further Williamson’s framework and consider entrepreneurship. Granovetter (1985) emphasises that types of social relations at the micro levels are as, if not more, important than the macro governance structures discussed by Williamson (e.g. 1975; 1985; 2000)⁴.

⁴Using Granovetter’s (1985) terminology, the exclusive stress on macro-level determinants corresponds to the “oversocialised approach”, while the “undersocialized approach” amounts to overlooking micro-level social structures.

The three previous levels all affect the fourth; resource allocation, including occupational choices such as entrepreneurship. This provides our chain of causality from institutions through to entrepreneurship. In the work which follows, we apply our (augmented) Williamson's (2000) framework to propose specific ways in which these institutions influence the growth aspirations of entrepreneurs, addressing each of the levels of the institutional hierarchy in turn.

2.1. Corruption

Corruption is a higher order informal institution in which the corresponding customs and patterns of behaviour are so widely shared that they become a norm. In a corrupt environment, officials realize private benefits at the cost of some business people, institutionalising corruption and leading to consistent expectations about its likelihood⁵. Corruption can thus be viewed like a tax, discouraging economic activities, including high aspiration entrepreneurship, which suffers from the higher transactions costs and greater uncertainty of a more corrupt environment (Anokhin and Schulze, 2009). Corruption may be more serious for new firms than incumbents. Firms which survive in a corrupt environment will have adapted their behaviour to the corresponding informal norms in order to limit the negative effects of corrupt practices (Choi and Thum, 2005; Tonoyan et al., 2010). Thus they will have developed contacts and social networks to mitigate the effects of corruption, and to make it more predictable. Insofar as entrepreneurs do not have the relevant business experience, they will need to develop these strategies and contacts, and in the interim will operate at a disadvantage. This notion of corruption as an informal social norm providing advantages to incumbent firms can be linked to the concept of rent seeking (Desai and Acs, 2007), in which incumbents share private benefits with government administrators at the cost of newcomers (Aidis et al., 2008).

⁵Seen this way, corruption is an example of a social element that can become institutionalised without gaining legitimacy (Jepperson, 1991).

Aidis et al. (2010) summarise the arguments that returns to entrepreneurship will be lower when corruption is higher, but do not consider differences between aspirations of entrepreneurs. However, the disincentive effects of corruption will be particularly serious for high growth entrepreneurs (Desai and Acs, 2007). Thus, Murphy et al. (1993) argue that while corruption is detrimental to high value-added entrepreneurship, it will not affect subsistence entrepreneurship. They present a formal model of this, exploring the trade-off between entrepreneurship and rent seeking (redistributing existing wealth, often through corrupt practises); they argue that the latter is rewarded more highly than the former in many institutional contexts. More generally, while corruption reduces the returns to all types of entrepreneurship, small-scale enterprises and self-employed workers can largely fly below the radar screens of corrupt officials, in a manner that would not be possible for new firms with a larger economic footprint⁶. Thus, corruption acts not only like a tax, but like a progressive tax, falling more heavily on entrepreneurs of sufficient scale to attract the attention of rapacious officials (see also Hunt and Laszlo, 2012). High growth entrepreneurs expanding their businesses reach the point at which the new firm will start to attract unwelcome attention from corrupt bureaucrats, reducing the expected returns. In the light of this, we hypothesise that:

Hypothesis 1. A higher level of corruption will reduce the growth aspirations of entrepreneurs.

2.2. Protection of property rights

Recent theories of entrepreneurship emphasise that “the institution of private property ... has an important psychological dimension that enhances our feelings of ... internal control and personal agency, and it thereby promotes entrepreneurial alertness” (Harper 2003: 74). Acemoglu and Johnson (2005) emphasise two related aspects of property rights: vertical, related to the risk of

⁶ A counter-argument is offered by Anokhin and Schulze (2009) who argue that while the presence of corruption will affect overall entrepreneurship negatively, high value-added projects will be less affected, as the gains could offset the additional costs. Our view is consistent with Aidis and Mickiewicz (2006).

expropriation by arbitrary government, and horizontal, related to the quality of contracting institutions. Effective constraints on the executive branch of the government ensure the protection and stability of property rights; Weingast (1995) views the limits imposed on the ability of the government to confiscate wealth as the constitutional foundation conducive to entrepreneurship. Property rights from this perspective are akin to the related but slightly wider concept of the “rule of law”, in that this corresponds to a stable institutional framework restraining the arbitrary use of power by politicians and public administrators⁷. This argument parallels our earlier discussion of corruption, but rather than increasing direct transactions costs, a lack of secure property rights raises the more fundamental threat of expropriation. High growth entrepreneurs if successful have potentially more to lose, and are also more likely to attract the attention of potential expropriators because of the higher value of their assets. Hence insecure property rights are likely to have a greater demotivational effect on high growth entrepreneurs.

Similar arguments derive from horizontal contracting institution perspective,⁸ the cornerstone of which is an independent judiciary. Once again, here, weak institutions bear more heavily on higher growth projects, which have greater needs for capital investment and greater reliance on contractual arrangements for the supply of inputs and the distribution of products. For example, entrepreneurs that plan to expand rapidly need to think from the outset about feasible sources of finance and when property rights are weaker, potential investors are less protected. Providing funds for entrepreneurs entails the commitments of financial resources now in return for promises about the future, and there are potentially serious asymmetries of information between lenders and borrowers, with the danger of opportunistic behaviour. The risks for the lender are greatly mitigated in an environment in which property rights are clearly defined and the legal system is transparent and effective. Moreover entrepreneurs must enter contracts with suppliers and retailers who, with asymmetries of information and perhaps greater experience over a newcomer, can have

⁷Note however that an executive constrained by law is different from the absent state. The latter implies no effective constraints on predatory behaviour by those with a local monopoly of violence.

⁸ Associated with the level of governance in Williamson’s hierarchy of institutions.

ample opportunities to cheat. Such issues are less significant for the self-employed and micro-firms, who are more likely to be able to satisfy their financing requirements themselves or via family and friends, and who can rely to a greater extent on informal relationship with suppliers and distributors (Fogel et al., 2006). Yet the horizontal and the vertical aspects of property rights are related; an independent judiciary that underpins the horizontal (contract-related) security is harder to achieve with an arbitrary government (vertical dimension), because political interventions into the judicial process make the outcomes of the latter uncertain.

Our approach leads us to de-emphasise intellectual property rights (IPR) per se; a category of institution often stressed in this context (see Autio and Acs, 2010; Bowen and De Clercq, 2008). If high growth entrepreneurs are exploiting product or process innovation, they are argued to be especially exposed to imitation or theft of their ideas, which would be protected by stronger IPR. However, Minniti and Lévesque (2010) question the centrality of innovation to entrepreneurial processes in all institutional contexts and emphasise the positive role of imitators, especially in emerging economies. Baumol and Strom (2007) suggest that in developed economies like US, the protection of IPR has become too rigid, strangling entrepreneurship instead of promoting it. Similarly, studying 177 of the most significant shifts in patent policy in 60 countries over 150 years, Lerner (2009) finds that strong IPR are negatively associated with innovation output. Thus while we regard property rights in the general sense discussed above as critical for high growth entrepreneurs, we propose that strong IPR will probably not have a similar positive impact in the context of entrepreneurship across a variety of institutional environments including both developed and emerging economies. Thus, our next hypothesis is formulated as follows.

Hypothesis 2. Insecure property rights (arbitrary government) will reduce the growth aspirations of entrepreneurs.

2.3. Government activity

Consistent with the institutional hierarchy discussed above, Fogel et al. (2006) place administrative quality and government actions at the institutional level below property rights and the legal regime. Moreover, they identify the size of the government (measured by expenditures) as a concise measure of ‘government activism’; an approach also applied by Aidis et al.(2010). Both argue that entrepreneurship will be negatively associated with the extent of government activity because of crowding out. As the government becomes more active, it needs to absorb a greater proportion of the resources of the economy and must compete for inputs with the private sector. It therefore bids up the supply prices for key resources needed by entrepreneurs, notably finance and human capital, and these higher costs may be felt more keenly by entrepreneurs than by existing firms because the former lack networks, contacts and experience. Greater government activism also requires higher state revenues, and generating this income for the state demotivates all labour supply, including entrepreneurship. Indeed, the welfare and tax systems may influence both the opportunity cost and the net financial return to higher growth entrepreneurship.

Moreover, as the state sector grows, a bureaucratic apparatus replaces increasing amounts of private decision-making. Then the government faces an acute agency problem because most of its output is not produced according to market driven processes, so determining the value of output and evaluating efficiency becomes a challenge (Boettke and Coyne, 2009). This is alleviated by bureaucratisation, an extensive network of regulations, but these in turn lead to ‘bureaucratic costs’ (Williamson, 1985). The increased complexity affects not just the internal organisation of the government but also those who have to deal with them, including businesses. “Pressures to conform to procedural requirements” imply “larger and more complex” administrative structures of business organisations (Scott and Meyer, 1991:123). Newcomers have to learn the corresponding rules and regulations and this slows down the dynamism of new ventures.

All these factors affect high growth entrepreneurs relatively more seriously than entrepreneurs as a whole. The higher cost of capital resulting from financial crowding out will particularly affect

high growth entrepreneurs, because, as discussed above, they will have greater need of investment, and will be more likely to rely on formal capital markets rather than informal loans through their personal networks. Their expected surpluses if their projects succeed are greater, and so they are more likely to be demotivated by higher taxes, especially if these are progressive. Higher marginal rates of taxes will weaken the incentives for growth aspiration entrepreneurship by reducing the expected gains⁹. Taxation may also benefit large incumbent firms at the cost of aspiring newcomers, especially if the former can increase their debt ratio more easily thereby escaping corporate taxes (Henrekson, 2007). At the same time, higher levels of welfare support provide alternative sources of income and, therefore, by increasing the alternative wage may reduce the net expected return. Higher growth entrepreneurship may be particularly negatively affected by raising the reservation wages of new employees. Equally, if not more important, extensive welfare support undermines the incentives for individual saving, which is a strong factor in entrepreneurial finance (Henrekson, 2007). Again, the availability of savings is most critical for high growth entrepreneurship¹⁰. Moreover, high growth entrepreneurs will be aware that if their firms do achieve larger scale, they will be involved in greater bureaucratic costs.¹¹ At the same time, self-employed entrepreneurs and micro firms by their very nature will have fewer business relationships with the government, even if the state sector is large. And last but not least, “countries with generous social security and welfare schemes do not emphasize the responsibility of the individual for their own survival, which may hamper ambitions to strive for innovation and growth.” (Hessels et al., 2008: 328).

Accordingly we posit:

⁹Though different types of taxes have different, ambiguous and nonlinear effects (Bruce and Mohsin, 2006; Georgellis and Wall, 2006; Cullen and Gordon, 2007).

¹⁰A counter-argument is that the additional insurance offered by welfare may actually enhance propensity to engage in risky ventures. However, Henrekson et al. (2010) question its empirical validity.

¹¹Autio (2011) calculates long-term average prevalence rates of high growth-aspiration entrepreneurs. He comments on the fact that these are several times higher in China than in India and links it to the extent of regulation in the latter. In the European context, Spain and Greece have exceptionally low rates. Both economies have been characterised by a large scope of government intervention.

Hypothesis 3. A greater scale of government activity will reduce the growth aspirations of entrepreneurs.

2.4. Micro level social structures and national level institutions

The characteristics and quality of social relations at a micro level are also important for entrepreneurial choices; failing to take these into account corresponds to what Granovetter (1985) describes as ‘undersocialized approach’. In particular, local social structures may compensate for deficiencies in the institutional environment. We posit that support from local social networks may also be important for individuals and entrepreneurial teams starting new growth-orientated ventures, perhaps as much as for established organisations (Meyer and Rowan, 1977; DiMaggio and Powell, 1991; Suchman, 1995). For example, contact with other entrepreneurs may provide them with advice, support and access to resources that result in social capital, which supports the growth of young businesses. These factors are equally important in weaker institutional contexts; learning from experienced entrepreneurs how to cope with corrupt or otherwise dysfunctional environment may help aspiring ones to acquire the confidence needed for expansion of their businesses.

Consistent with this, we posit:

Hypothesis 4. Social contacts with other entrepreneurs will (i) support an individual’s growth aspirations, and (ii) attenuate the negative impact on growth aspirations of deficiencies in the national institutions discussed in hypotheses 1-3.

3. Data and methodology

3.1. *Individual Data*

We construct our dataset to test our hypotheses by merging data from the Global Entrepreneurship Monitor (GEM)(see Reynolds et al., 2005) with a variety of time-varying national institutional indicators and macroeconomic controls. We utilize data collected through the GEM adult population surveys in 2001-2006 that cover 42 countries worldwide (for details of the sampling procedure, see Reynolds et al.,2008)¹².In this study, we use *young firms* (created in the past 42 months) as our proxy for entrepreneurial entry. This category serves well the purpose of our study because growth aspirations refer to firms already in existence and policy relevance comes from the fact that growth correlates strongly with value enhancing activities, in particular when it comes from new ventures rather than established businesses (Acs, 2006; Baumol and Strom, 2007). Also unlike an alternative measure of nascent entrepreneurship, the young firm category provides good coverage of the current level of employment used in defining our dependent variable. Owners-managers of start-ups find it difficult to respond to questions concerning the current level of employment; in our dataset, only 8% of the start-ups but 83% of young firms actually report the level of employment.

3.2. *Dependent variable*

We use employment growth aspirations (EGA) of entrepreneurs as our dependent variable capturing the intentions of newly established entrepreneurs to increase employment over a five year horizon. The use of aspirations to indicate outcomes has a sound theoretical and empirical base via the central role attributed to ‘strategic dynamism’ in the analytical construct of ‘entrepreneurial orientation’ which has robust empirical validity in terms of predicting performance (Covin and

¹²The GEM data capture a wide range of business creation activities, distinguishing between (a) individuals who intend to create a new venture, (b) who are in the process of establishing a new firm (start-ups, or nascent entrepreneurs), (c) currently operating young firms (under 3.5 years), and (d) other owners-managers of established businesses.

Wales, 2011). Moreover, there is empirical evidence that entrepreneurial aspirations are closely related to entrepreneurial outcomes. Thus, Kolvereid and Bullvag (1996), Baum et al. (1998), Baum et al. (2001), Wiklund and Shepherd (2003) and Delmar and Wiklund (2008) find a positive significant link between entrepreneurs' growth aspirations and actual growth¹³. An entrepreneur's employment growth aspirations are calculated as the difference between the natural logarithms of expected level of the current and expected level of employment(five years hence)which approximates the expected rate of employment growth¹⁴. Previous studies utilizing GEM data (Bowen and DeClercq, 2008; Autio and Acs, 2010) use instead the level of employment¹⁵. We do not consider this to be an appropriate measure because the employment growth rate may become zero or even negative when we take account of the current level of employment, even in a business classified as having high growth aspirations. Of the entrepreneurs who expect to employ others five years hence, 28.5% have their expected employment equal to their current level of employment; hence their expectation is of zero growth¹⁶.

Figure 1 illustrates the differences between countries in the employment growth aspirations of new businesses, with 95% confidence intervals¹⁷. We observe considerable heterogeneity across countries. Thus, the national average aspired rate of employment growth over five years is as low as 16% in Greece and as high as 74% in Chile¹⁸. The average across all countries in our sample is 41%, which is the horizontal line at zero in the figure.

{Figure 1}

¹³ Psychologists have studied the same issue; a meta-analysis finds that aspirations have a significant impact in explaining outcomes, though they are not the only explanation (Sheeran, 2002).

¹⁴Following existing practice (Parker, 2009), we add the owner-manager to the expected and current employees to calculate employment.

¹⁵The question is worded, 'How many people will be working for this business, not counting the owners but including all exclusive subcontractors, when it is five years old?' which does not capture the expected net employment creation compared with the current level.

¹⁶There are also some cases when the expected rate of employment growth is actually negative (4.5%).

¹⁷These were calculated from a random-intercept model that included only country effects.

¹⁸These mean scores for countries are calculated on the basis of random intercepts, while confidence intervals are based on empirical Bayesian predictions.

Figure 2 plots young businesses' prevalence rates against growth aspirations across countries. Thus on the horizontal axis we have average prevalence rates of young businesses and growth aspirations on the vertical. The figure supports the starting point for this paper; that even at the national level, entrepreneurship and high growth aspiration entrepreneurship do not match closely. Thus Chile has middle-range prevalence rate of entrepreneurship, but entrepreneurs' growth aspirations are high. In contrast, similar middle-range prevalence rate in Jordan comes with low average aspirations. Greece, with prevalence rate similar to other relatively developed economies has remarkably few high-growth-aspiration entrepreneurs.

{Figure 2}

3.3. Cross country and micro data related to our hypotheses

While other studies used World Bank data to explore some related hypotheses (e.g. Desai et al., 2003; Djankov et al., 2002), we favour the Heritage Foundation dataset because it covers more years, and therefore matches more closely the variation by country and time in our GEM sample (see McMullen et al., 2008; Aidis et al., 2010). Therefore, to test Hypothesis 1, we use the Heritage Foundation Index of 'Freedom from Corruption'¹⁹(*l.Corr*, where the operator *l* is added to denote that a variable is lagged). This indicator shows the perception of corruption in the business environment, including levels of governmental administrative, judicial and legal corruption (Beach and Kane, 2008). It ranges from 0 to 100; after transformation, 100 indicates the highest level of corruption²⁰. For the strength of property rights (Hypothesis 2), we follow Acemoglu and Johnson (2005) and use the Polity IV measure of efficient constraints on the arbitrary power of the executive branch of the government (Marshall and Jaggers, 2007), "*constraints on executive*" (*l.ExecConstr*). To test the significance of IPR as a measure of property rights in H2, we also use the measure of the IPR protection from the World Economic Forum. It is scored as a continuous

¹⁹Transformed by subtracting it from 100 to reverse the scale.

²⁰Separating different components of corruption would produce sharper tests, but we are not aware of data with sufficient coverage to correspond to our GEM sample by country and year.

variable from 1, denoting weak protection, to 7, representing the world's most stringent level of protection (*l.IntelPro*). We again use the Heritage Foundation to measure the size of the government in Hypothesis 3. Our measure is a quadratic transformation of the ratio of government expense to GDP (*l.GovSize*)²¹.

In order to test hypothesis 4, we mediate the institutional factors with a variable capturing social networking. Micro-social structures are potentially significant determinants of entrepreneurship and business networks have been found to be important, both in assisting entrepreneurs to find the resources required for business creation (Aldrich et al., 1987; Aidis et al., 2008) and via social learning (Minniti et al., 2005b). Network capital also facilitates entrepreneurs' access to finance (Aldrich et al., 1987; Johannisson, 2000; Korosteleva and Mickiewicz, 2011). We measure this by using the response to a GEM question about whether the individual knows an entrepreneur involved in any start-up personally (*KnowsEntrep*), interacted separately with each of the institutional factors.

3.4 Control Variables

Our estimation method is multilevel modelling and we have control variables at both the country and individual levels. Following the literature, we control for the national level of development with per capita(pc) GDP at purchasing power parity (*l.GDP pc*) and the GDP annual growth rate (obtained from the World Bank) for cyclical effects (*l.GDP growth*) (see Aidis et al., 2010). We also control for the individual characteristics of entrepreneurs (Parker, 2009). Thus, previous GEM-based research shows that individuals with higher educational attainment are more likely to start a business (Minniti et al., 2005b) and to direct their efforts towards high-growth activities (Autio, 2005). Thus, we control for tertiary education (*EducPost*). In addition, middle-aged persons are more likely to start a business (Reynolds et al. 1999), so we control for age

²¹To make the interpretation easier, we follow Reynolds (2010) in transforming the Heritage Foundation measure to obtain the original ratio of government expense to GDP, so that larger values reflect a larger size of government: $GE = 100 - 0.03(\text{Government expense to GDP})/2$ (Beach 2008: 46).

(*Age*).²²Being a male increases the prevalence rate of entrepreneurship (Minniti et al., 2005a) so we include a dummy variable for gender (*Male*). We also control for the current level of employment, expecting a higher initial level of employment to be negatively related to employment growth plans (*CurrEmp*) and introduce a dummy variable denoting individual experience of being a business angel (*BusAngel*). Previous entrepreneurial experience is argued to make subsequent entry more likely by enhancing self-efficacy, both through “direct mastery experience (learning by doing) and vicarious experience (learning by seeing)” (Harper 2003: 46). However, owning another existing business (*EstabBus*) may raise the opportunity cost of a new involvement.

Finally, we introduced a set of sectoral (industry) controls in all our specifications to take account of sectoral differences in capital-intensity and optimum size of the firm that may affect growth aspirations.

The definitions of all variables are presented in Table 1 below.

{Table 1}

3.5 Methodology

We use multilevel modelling to address unobserved heterogeneity within the context of a cross-country, cross-time, cross-individual dataset. Multilevel modelling takes account of the fact that the dataset has a hierarchical structure in which *individuals* represent level one, *country-years* samples represent level two and *countries* represent level three. This allows us to control for clustering of the data first within a country and second within a country-year subsample. Failure to do this would lead to biased results (Rabe-Hesketh et al., 2005). We utilise more sample information by choosing both country and sample-country-years for our level two and three groupings, to take account of differences in samples collected in different years. We tested whether the choice of multilevel modelling with country and sample-country-year effects was justified and confirmed

²²We tested for non-linearity in age but the results were insignificant.

this: we found that both country and sample-country-year group effects (random intercepts) were statistically significant. In addition to individual effects (subscript ijk below, where i represents an individual, j a particular annual-country sample, and k a country) we also introduced country averages (subscript k below), distinguishing between individual level and group level variation, so that for instance coefficient β_5 for $EstabBus_{ijk}$ represents an individual effect of being an owner of established business, and coefficient β_{12} for $EstabBus_k$ represents a peer effect of the prevalence rate of established firms in a given country group that may affect entrepreneurs' growth aspirations. By using the LR test, we verify whether the inclusion of peer effects is justified.

Our baseline regression model is therefore specified as follows:

$$\begin{aligned} EGA_{ijk} = & \beta_0 + \beta_1 CurrEmp_{ijk} + \beta_2 Age_{ijk} + \beta_3 Male_{ijk} + \beta_4 EducPost_{ijk} + \beta_5 EstabBus_{ijk} + \\ & + \beta_6 BusAngel_{ijk} + \beta_7 KnowsEntrep_{ijk} + \beta_8 CurrEmp_k + \beta_9 Age_k + \beta_{10} Male_k + \beta_{11} EducPost_k + (1) \\ & + \beta_{12} EstabBus_k + \beta_{13} BusAngel_k + \beta_{14} KnowsEntrep_k + \beta_{15} l.GovSize_{jk} + \beta_{16} l.ExecConstr_{jk} + \\ & + \beta_{17} l.Corr_{jk} + \beta_{18} l.Intelpro_{jk} + \beta_{19} l.GDPgrowth_{jk} + \beta_{20} l.GDPpc_{jk} + u_k + v_{jk} + \varepsilon_{ijk} \end{aligned}$$

Where EGA_{ijk} is our measure of entrepreneurial growth aspirations,

$$\{ CurrEmp_{ijk}, Age_{ijk}, Male_{ijk}, EducPost_{ijk}, EstabBus_{ijk}, BusAngel_{ijk}, KnowsEntrep_{ijk} \}$$

represent individual-level direct effects,

$$\{ CurrEmp_k, Age_k, Male_k, EducPost_k, EstabBus_k, BusAngel_k, KnowsEntrep_k, \}$$

represent country mean effects, and

$$l.GovSize_{jk}, l.ExecConstr_{jk}, l.Intelpro_{jk}, l.Corr_{jk}, l.GDPgrowth_{jk}, l.GDPpc_{jk}$$

represent the lagged values of the institutional variables and macroeconomic controls²³.

²³We also encountered the same problems with outliers in the employment growth expectations variable as Autio and Acs (2010) and resolved them in the similar way. We eliminated 171 individual-level observations based on the definition of severe outliers as being outside the outer fence (defined by inter-quartile range multiplied by three). We checked the sensitivity of our results to eliminating outliers and found that some of our results do not hold in the presence of outliers but our approach is justified by the fact that expectations become very imprecise for largest numbers and are outside a plausible range.

The combination of $u_k + v_{jk} + \varepsilon_{ijk}$ represents the random part of the equation, where u_k are the country level residuals, v_{jk} are the year-country residuals, and ε_{ijk} are individual-level residuals.

Our study may be subject to some potential endogeneity because the country-year individual growth aspirations when aggregated are likely to affect some of the macro variables, for instance GDP growth rate. As noted above, we alleviate this issue by lagging the macroeconomics and institutional variables. We lag the institutional variables by three years, which was the longest available without reducing the sample, and we use one year lag for macroeconomic indicators.²⁴ To investigate potential multicollinearity problems, we calculated variance inflation factors (VIF) for all our variables²⁵. Apart from the interaction term between one of the institutional variables (executive constraints) and *KnowsEntrep* (knowing other entrepreneurs), and its composites, we found no indication of multicollinearity problems. Thus the VIF for all other variables are well below the conventional level of 10. Moreover, multicollinearity should always be considered in the context of the sample size, since both multicollinearity and “micronumerosity” jointly affect the stability of coefficients (Goldberger, 1991). In that sense, a large sample size (as in our case) may alleviate the impact of multicollinearity. Despite this, we still choose to apply a conservative strategy of focusing on simple correlations to guide our approach to specification in the face of multicollinearity. We take a cut-off point of over 0.7 (for correlation matrix, see Table 2), to determine the specifications and robustness checks we report below, as we discuss in the next section²⁶.

²⁴ We were able to construct three years lags for all our institutional variables but intellectual property rights, for which we use a two year lag.

²⁵ Based on specification 7 in Table 3.

²⁶ We also considered the bias caused by potential interdependence between the choice of whether to become an entrepreneur and growth aspirations, by introducing into the employment growth aspirations equation (second stage or outcome equation) the inverse Mill's ratio based on modelling the choice to become an entrepreneur (first stage or selection equation). To identify the first stage of the Heckman selection model, we chose a variable that is correlated with the first stage dependent variable (entrepreneurial entry) and uncorrelated with the second one (growth aspirations). We utilised two alternative identification strategies to ensure robustness. In the first, we use a series on

{Table 2}

4. Empirical results

Our empirical results are presented in Table 3. We report a variety of specifications to indicate the robustness of our findings. First, we report the model without country means as specification (1), and then add country-aggregates of individual-level variables (peer effects) as specification 2. The latter corresponds to our baseline regression as discussed in the previous section. We next perform the likelihood ratio (LR) test to check whether the inclusion of the peer effects improves the goodness of fit. The LR ratio test statistic (see a note to Table 3) informs us that adding all the peer effects does not improve the fit, so we thereafter retain only the one which is statistically significant: the country-averaged owners of established business in specification 3. The LR test now indicates an improvement in the model goodness of fit over the baseline specification. Specification 4 addresses a multicollinearity issue, in that we observe in Table 2 that corruption is highly correlated with GDP per capita (-0.85); well above our cut-off point of 0.7. We therefore run specification 4 using an alternative control for the level of development; a set of GDP pc dummies denoting the five quintiles of its distribution. Finally, we explore whether the general measure of protection of property rights substitutes for IPR as used by Autio and Acs (2010) and Bowen and DeClercq (2008), creating an omitted variable problem. To verify this, we run specification (5), where the constitutional level measure of property rights (effective constraints on the executive) is substituted with IPR. Due to the high correlation between IPR and corruption (-0.83), we also omit corruption, otherwise it could work against getting a significant result for IPR. Specifications 6-

start-up entry regulation procedures from the World Bank's Doing Business indicators. Theory suggests that entrepreneurial entry will be closely related to start-up entry regulation procedures (see e.g. Djankov et al., 2002) but because they constitute sunk costs, they should not be relevant for employment growth aspirations of new firms. Our alternative identification strategy focuses on informal finance. This is a major influence on entrepreneurial entry (Bygrave, 2003) but is likely to play a less important role in growth aspirations, as for those formal sources of funds will be needed. We therefore introduce the prevalence rate of informal investors into the selection equation. These are derived from GEM data by taking the average percentage of respondents who invested in another start-up in the past three years in each country-year sub-sample. However neither of these was statistically significant. Thus, we could not detect a selection bias arising from the possibility that the factors determining the decision to become an entrepreneur might differ from those determining a new firm's employment growth expectations. Accordingly, we focus further only on the employment growth aspirations models.

8report the interaction term results, testing Hypothesis 4: in these three specifications we augment our model with the cross-level interaction terms between knowing other entrepreneurs and government size, corruption and constraints on the executive correspondingly. Each model reports log-likelihood and Akaike Information Criterion to indicate the goodness of fit (Grilli and Rampichini, 2011).

Considering our results we find the coefficient on corruption to be highly significant and with the expected sign in all specifications where it is included, supporting Hypothesis 1 that entrepreneurs in institutional environments which are more corrupt have lower employment growth aspirations. We also find evidence in support of Hypothesis 2. The variable that we use to measure the strength of property rights, constraints on executive, is significant and positive in all specifications but (1) and (2). In contrast, the coefficient on IPR is insignificant in specification (5). Thus, as expected we do not identify a significant impact of the strength of IPR on entrepreneurs' employment growth aspirations. Finally, we also find strong support for hypothesis 3 in all five specifications; the coefficient on the size of the government is always negative and highly significant.

{ Table 3 }

4.1. Interaction Effects

Hypothesis 4 proposes that social effects at individual level may moderate the impact of the institutional context. We therefore ran a series of models in which we interacted our three institutional measures with the social network variable (knowing other entrepreneurs). These are reported in Table 3 (specifications 6-8). We may note that our results with respect to the first three hypotheses are unchanged, indicating the robustness of our hypotheses to alternative specifications. At the same time, we find support for Hypothesis 4. Hence, for interactions with constraints on executive and corruption measures, we find that embeddedness in local social networks decreases

the significance of these macro effects, though the coefficient on large government remains insignificant (Table 3, specification (6)).

4.2. Control variables

Turning to the control variables, the patterns largely conform to findings elsewhere in the literature. The individual age effects are significant and negative: older people have lower employment growth aspirations. Higher or postsecondary education is positively associated with growth aspirations. Next, being a male is positively associated with growth aspirations, as is previous experience as a business angel. Being the owner of an existing business has no significant effect. In contrast, the impact of network capital (knowing other entrepreneurs) is highly significant and positive across all specifications. The current level of employment, although with the expected negative sign, is insignificant. Per capita GDP is negatively related to growth aspirations and when this variable is replaced with a set of quintile dummies, countries which fall within the three highest 20th percentiles of GDP per capita are found to have lower growth aspirations. These results are consistent with the view that there is a wider set of growth opportunities for entrepreneurs in developing economies.

5. Discussion

We have explored how heterogeneity in institutions across countries might affect entrepreneurs' employment growth aspirations. We drew on the ideas of North (1990), Williamson (2000) and Granovetter (1985) to formulate our conceptualisation of the institutions relevant to high growth entrepreneurship. We also built on the empirical developments of Bowen and De Clercq (2008), Aidis et al. (2010) and Autio and Acs (2010). Using a large inter temporal cross-country cross-individual dataset and multilevel modelling methods, we found support for all our hypotheses concerning the effects of corruption, property rights, government activity, and the

cross-level mediating effects of individual social networks and these institutions on the growth aspirations of entrepreneurs.

The property rights result is directly consistent with Williamson (2000), who emphasises these as being at the core of the formal institutional order. While he does not stress corruption, following North (1990) he also attaches significance to informal institutions and we have proposed that corruption represents an embedded pattern of informal behaviour norms that becomes institutionalised as part of a slow changing informal order. We go beyond Williamson's (2000) framework in emphasising the difference between the constitutional level formal institutions (constraints on executive branch of the government) and the lower level formal setup, more related to medium and short-term policy choices, and best captured by the size of the government. Aspirations of entrepreneurs may be affected by both, but the mechanisms are different. We argue that institutional deficiencies at the constitutional level create profound unpredictability in the environment that the entrepreneurs face. At the same time, a larger government, though it can also make the environment relatively less stable due to policy changes, is best seen as imposing additional, predictable costs on businesses, which the entrepreneurs take into account in shaping their aspirations. Our results robustly indicate that both weak property rights and corruption do in fact constrain entrepreneur's employment growth aspirations. We also find strong support for the idea that high growth entrepreneurship will be crowded out by government activism. Thus while the government may play many important roles in society, there is a cost in terms of entrepreneurial employment aspirations. As suggested by the theory, lack of security of property rights matters as well. The two dimensions are neither highly correlated empirically (see Table 2), nor they can be compressed to a single institutional dimension. For example, growth aspirations of owners-managers of young businesses may be low both in Russia and Germany, but that may be caused more by the arbitrariness of the government in the former case, and more by its size in the latter.

It may seem surprising that we are unable to confirm the impact of strong IPR on growth aspirations. However, our results are consistent with both Minniti and Lévesque (2010), who point out that the role of Schumpeterian innovation-oriented entrepreneurship may be overemphasised, and with Baumol and Strom (2007) who stress the counter-productive effects if the protection of IPR becomes too strong.

While we adopt Williamson's hierarchy of institutions, we argue that it is an analytical tool which should be handled carefully. In particular, Granovetter's (1985) critique of the new institutional economics should be taken seriously. He argues that, at the lower level of institutional structure, not only the formal governance structures but also local social structures and social networks are important. Our results are consistent with this view: the impact of macro level institutions, notably corruption and property rights, is weaker where local social ties are stronger.²⁷ This is also in line with much of the sociological literature on new institutionalism, which suggests that the impact of macro level institutional order is moderated by local social structures (Meyer and Rowan, 1977; DiMaggio and Powell, 1991; Suchman, 1995).

There are some important limitations to our study which one might wish to address in subsequent research. While GEM provides the largest cross-country dataset available on entrepreneurial activity, the number of countries and especially developing countries is restricted. Thus the variation in institutions is somewhat limited. Moreover, the time horizon of the dataset is still quite short; certainly not long enough for testing the impact of institutional development on entrepreneurial aspirations within any one country. Hence, our hypotheses relate primarily to the impact of cross-sectional variation in institutions. This limitation can be addressed in the future by undertaking a similar analysis to that presented in this paper when the number of countries and years has expanded, especially once GEM includes more low and middle income countries. Last but not least, while we took some steps to alleviate endogeneity, we cannot claim to eliminate it.

²⁷ However, in the case of government size, we did not find a significant moderating effect of networks. This may be simply due to the fact that we do not measure network characteristics that would be relevant here. It could be, for instance, that 'knowing government officials' could prove significant, but we do not have such a survey instrument at our disposal.

Availability of panel data or further exploration of possible instruments would be important to overcome the problem.

Our findings have important implications for policy makers. Entrepreneurs can adopt high growth aspirations in many contexts, in part because – as our results suggest - formal institutions such as property rights can be replaced to a greater or lesser extent by local informal ones like social networks. However, while this effect reduces the negative impact of deficient high order institutions, it does not eliminate it, as documented by our Table 3 results. The high order institutions remain important for growth aspiration entrepreneurship even when we account for moderating impact of local social structures: growth aspirations are significantly reduced where corruption is high, property rights protection is inadequate, or government size is large. These three indicate the directions for any policy reform aiming to enhance growth aspirations of owners-mangers of young businesses.

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Table 1

Descriptive statistics and definitions of explanatory and variables.

Variable	Definition	Mean	S.D.
<i>Explanatory variables: business environment & macroeconomic variables</i>			
Constraints on executive (t-3)	Polity IV ‘Executive Constraints’; scores from 1=“unlimited authority” to 7=“executive parity”; higher value denotes less arbitrariness	6.57	1.06
Intellectual property rights (t-2)	Intellectual Property Protection index (Global Competitiveness Report); scores from 1=“weak protection” to 7=“strong protection”	5.25	1.06
Corruption (t-3)	Heritage Foundation ‘Corruption’ index, ranging from 0 to 100; higher value denotes more corruption	29.33	21.56
Government size (t-3)	Government spending / GDP; calculated from Heritage Foundation ‘Government size’ index (HF), reversing their formula: Government Size = $[(100 - HF) / 0.03]^{0.03}$	38.27	11.7
GDP per capita ppp (t-1)	GDP per capita at purchasing power parity, constant at 2000 \$USD (WB WDI 2010)	25,244	11,191
GDP growth rate (t-1)	Annual GDP growth rate (WB WDI 2010)	3.15	2.67
iq2	The second quintile of the logarithm of GDP pc at PPP (t-1)	.21	.41
iq3	The third quintile of the logarithm of GDP pc at PPP (t-1)	.18	.39
iq4	The fourth quintile of the logarithm of GDP pc at PPP (t-1)	.17	.37
iq5	The fifth quintile of the logarithm of GDP pc at PPP (t-1)	.20	.40
<i>Explanatory variables: personal characteristics</i>			
Age	The exact age of the respondent between 14 and 99 at time of interview	39	12
Male	1=male, 0 otherwise	.63	.48
Current employment	Current number of employees + owner-manager	97	5688
Education: Post-secondary	1=respondent has a post-secondary education	.18	.38
Owner-manager of existing business	1=current owner/manager of business, 0 otherwise	.04	.19
Bus angel in last 3 years	1=business angel in past three years, 0 otherwise	.08	.28
Knows other entrepreneurs	1=personally knows entrepreneurs in past two years, zero otherwise	.62	.48
<i>Dependent variable:</i>			
Entrepreneur’s employment growth aspirations (EGA)	Percentage change in the expected level of employment in 5- yrs’ time over the current level of employment by new firms	.42	.67

Source: GEM 2001-2006 unless specified otherwise; the reported statistics are based on the set of observations actually used in estimations (8,160) to eliminate the joint effect of missingness in all variables.

Table 2
Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Entrepreneur's Growth Aspirations (1)	1																		
Current employment level (2)	-.02	1																	
Age (3)	-.11	-.01	1																
Male (4)	.08	.00	-.00	1															
Education: postsecondary (5)	.03	-.00	.05	.01	1														
Owner-manager of exist. bus (6)	-.03	-.00	.05	.02	.06	1													
Bus angel in last 3 years (7)	.05	-.00	-.01	.04	.06	.08	1												
Knows other entrepreneurs (8)	.11	.01	-.12	.11	.06	.00	.10	1											
Owner-manager of exist. bus, country mean(9)	-.01	.00	-.08	-.07	-.04	.01	.02	-.02	1										
Government size, HF (t-3) (10)	-.08	.01	.06	.05	.04	.01	-.00	.06	-.51	1									
Constraints on executive (t-3) (11)	-.03	.00	.08	-.03	.01	.02	-.01	-.02	-.17	.55	1								
Intellectual property rights (t-2) (12)	-.02	.01	.13	.04	.06	-.05	-.00	.03	-.57	.56	.36	1							
Corruption (t-3) (13)	.02	-.01	-.14	-.03	-.12	.00	-.01	-.05	.56	-.61	-.35	-.83	1						
GDP growth rate (t-1) (14)	.03	-.02	-.03	-.04	.02	.00	.00	.02	.28	-.40	-.39	-.40	.28	1					
GDP per capita ppp (t-1) (15)	-.04	.01	.14	.05	.11	.05	.02	.03	-.59	.52	.34	.80	-.85	.24	1				
iq2 (16)	-.04	.01	.03	.01	-.05	.18	.00	-.05	.11	.05	.14	-.21	.09	.10	-.05	1			
iq3 (17)	-.01	-.01	.04	.04	-.05	-.07	-.04	.04	-.32	.42	.18	.34	-.35	-.22	.21	-.24	1		
iq4 (18)	-.01	-.01	.04	-.01	.13	-.03	-.02	-.01	-.26	.23	.18	.41	-.31	-.13	.26	-.23		1	
iq5 (19)	.00	.03	.05	.02	.04	-.03	.06	.04	-.12	-.05	-.08	.30	-.32	-.03	.55	-.26	-.24	-.23	1

Source: GEM 2001-2006; Polity IV, Global Competitiveness Report (various issues), Heritage Foundation, UNCTAD, World Bank WDI. All variables except for dummy variables are standardised. The correlation matrix is produced based on the set of observations actually used in estimations (8,160).

Table 3

Estimation results for entrepreneur's growth aspirations, Multilevel Random Intercept model.

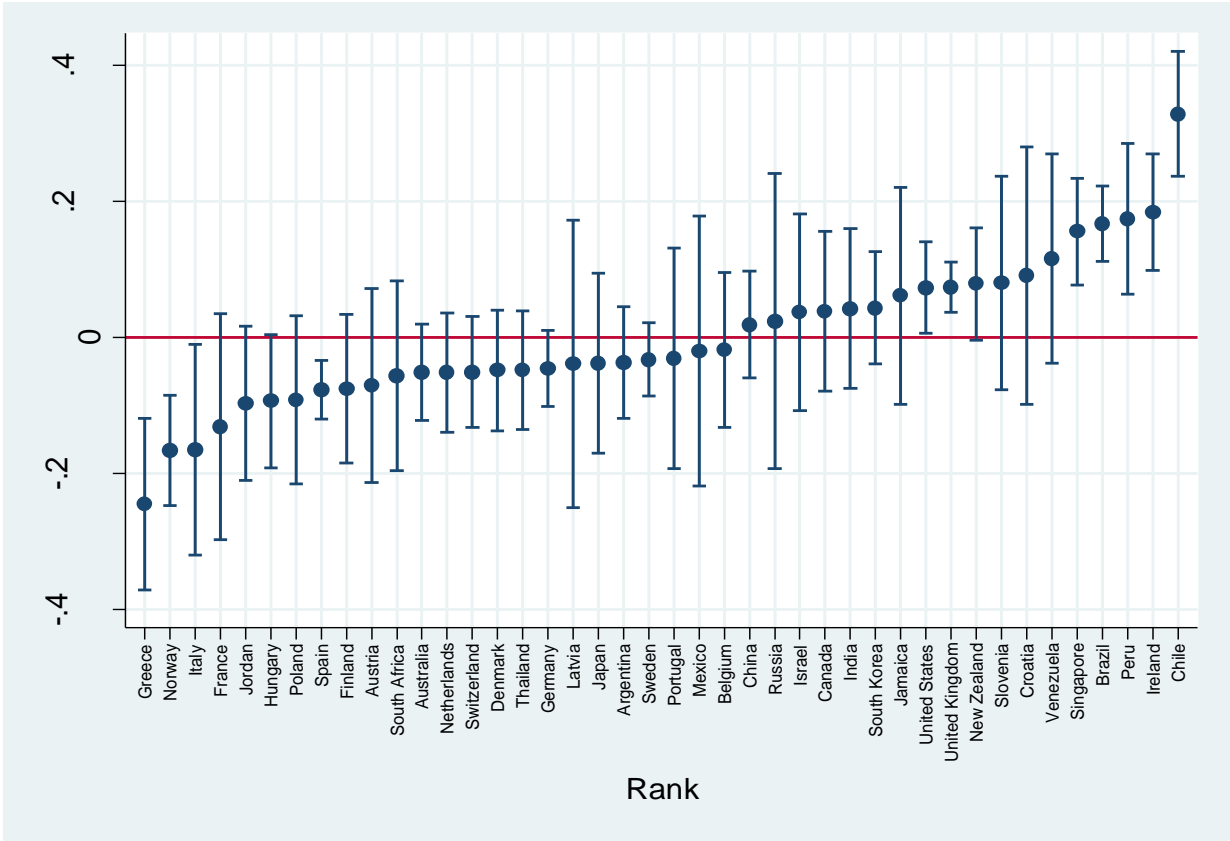
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Individual level variables</i>								
Current employment level	-0.0107 (0.0072)	-0.0104 (0.00718)	-0.0105 (0.00718)	-0.0105 (0.00718)	-0.0106 (0.0072)	-0.0104 (0.0072)	-0.0104 (0.00718)	-0.0104 (0.0072)
Age	-0.114*** (0.0132)	-0.115*** (0.0132)	-0.114*** (0.0132)	-0.114*** (0.0132)	-0.11*** (0.0132)	-0.11*** (0.0132)	-0.114*** (0.0132)	-0.11*** (0.0132)
Male	0.114*** (0.0194)	0.114*** (0.0194)	0.114*** (0.0194)	0.114*** (0.0194)	0.112*** (0.0194)	0.11*** (0.0194)	0.114*** (0.0194)	0.11*** (0.0194)
Education: postsecondary	0.0541** (0.0253)	0.0548** (0.0253)	0.0542** (0.0252)	0.0527** (0.0253)	0.0569** (0.0254)	0.052** (0.0253)	0.0517** (0.0253)	0.053** (0.0253)
Owner-manager of exist businesses	-0.0602 (0.0524)	-0.0590 (0.0523)	-0.0604 (0.0523)	-0.0609 (0.0524)	-0.0578 (0.0524)	-0.0609 (0.0524)	-0.0607 (0.0523)	-0.0617 (0.0524)
Bus angel in last 3 years	0.131*** (0.0333)	0.132*** (0.0333)	0.132*** (0.0333)	0.131*** (0.0333)	0.131*** (0.0333)	0.13*** (0.0333)	0.130*** (0.0333)	0.13*** (0.0333)
Knows other entrepreneurs	0.144*** (0.0195)	0.142*** (0.0195)	0.144*** (0.0195)	0.144*** (0.0195)	0.144*** (0.0195)	0.22*** (0.0663)	0.0788** (0.0328)	0.40*** (0.122)
<i>Country level means</i>								
Current employment level country mean	- -	-0.00636 (0.0129)	- -	- -	- -	- -	- -	- -
Male, country mean	- -	-0.0156 (0.0230)	- -	- -	- -	- -	- -	- -
Education: postsecondary, country mean	- -	-0.0144 (0.0225)	- -	- -	- -	- -	- -	- -
Owner-manager of exist bus, country mean	- -	-0.0481** (0.0241)	-0.051*** (0.0190)	-0.0417** (0.0191)	-0.0340 (0.0216)	-0.041** (0.0191)	-0.0401** (0.0191)	-0.044** (0.0193)
Bus angel in last 3 years, country mean	- -	-0.0279 (0.0271)	- -	- -	- -	- -	- -	- -
Knows other entrepreneurs, country mean	- -	0.0520 (0.0326)	- -	- -	- -	- -	- -	- -
<i>Variables related to hypotheses 1-3</i>								
Government size, HF index reversed (t-3)	-0.100*** (0.0224)	-0.130*** (0.0234)	-0.123*** (0.0216)	-0.120*** (0.0235)	-0.09*** (0.0241)	-0.11*** (0.0264)	-0.120*** (0.0234)	-0.12*** (0.0237)
Constraints on executive (t-3)	0.0288 (0.0199)	0.0303 (0.0213)	0.0381** (0.0181)	0.0343* (0.0189)	- -	0.0344* (0.0188)	0.0362* (0.0188)	0.06*** (0.0225)
Intellectual property rights (t-2)	- -	- -	- -	- -	0.0171 (0.0313)	- -	- -	- -
Corruption (t-3)	-0.088*** (0.0331)	-0.095*** (0.0323)	-0.099*** (0.0302)	-0.086*** (0.0309)	- -	-0.08*** (0.0309)	-0.115*** (0.0329)	-0.09*** (0.0311)
<i>Interaction terms</i>								
Government size (t-3) x Knows other entrepreneurs	- -	- -	- -	- -	- -	-0.0422 (0.0346)	- -	- -
Constraints on executive (t-3) x Knows other entr.	- -	- -	- -	- -	- -	- -	- -	-0.128** (0.0592)
Corruption (t-3) x Knows other entrepreneurs	- -	- -	- -	- -	- -	- -	0.0432** (0.0175)	- -

Table 3
Follow up.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Macroeconomic level control variables</i>								
GDP growth rate (t-1)	0.0128 (0.0132)	0.00837 (0.0132)	0.0148 (0.0128)	0.0138 (0.0130)	0.0116 (0.0139)	0.0135 (0.0130)	0.0133 (0.0130)	0.0134 (0.0131)
GDP per capita ppp (t-1)	-0.0579* (0.0311)	-0.0671** (0.0312)	-0.083*** (0.0293)	- -	- -	- -	- -	- -
GDP per capita ppp (t-1): iq2	- -	- -	- -	-0.0985 (0.0656)	-0.0126 (0.0712)	-0.0994 (0.0655)	-0.100 (0.0654)	-0.0978 (0.0660)
GDP per capita ppp (t-1): iq3	- -	- -	- -	-0.146* (0.0866)	-0.0337 (0.0917)	-0.145* (0.0864)	-0.146* (0.0863)	-0.147* (0.0870)
GDP per capita ppp (t-1): iq4	- -	- -	- -	-0.171* (0.0875)	-0.0501 (0.0929)	-0.170* (0.0873)	-0.171** (0.0871)	-0.171* (0.0879)
GDP per capita ppp (t-1): iq5	- -	- -	- -	-0.184** (0.0826)	-0.0475 (0.0825)	-0.184** (0.0823)	-0.185** (0.0823)	-0.184** (0.0831)
Constant	-0.381*** (0.0445)	-0.373*** (0.0437)	-0.367*** (0.0436)	-0.25*** (0.0699)	-0.37*** (0.043)	-0.275 (0.073)	-0.221 (0.071)	-0.339 (0.082)
Industrial controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,160	8,160	8,160	8,160	8,160	8,160	8,160	8,160
Number of country groups	42	42	42	42	42	42	42	42
Log Likelihood	-9947	-9942	-9944	-9945	-9949	-9944	-9942	-9942
Df	15	21	16	19	18	20	20	20
Akaike Information Criterion	19931.48	19934.14	19927.36	19935.6	19942.0	19936.1	19931.5	19932.9
<i>Random effects parameters</i>								
sigma_u	0.097*** (0.0204)	0.074*** (0.0198)	0.078*** (0.020)	0.08*** (0.021)	0.11*** (0.0221)	0.08*** (0.021)	0.08*** (0.02)	.086*** (0.021)
sigma_v	0.072*** (0.0179)	0.0702*** (0.018)	0.072*** (0.018)	0.07*** (0.018)	0.07*** (0.019)	0.07*** (0.018)	0.07*** (0.018)	0.07*** (0.018)
sigma_e	0.815*** (0.006)	0.815*** (0.006)	0.815*** (0.006)	0.81*** (0.006)	0.81*** (0.006)	0.81*** (0.006)	0.81*** (0.006)	0.81*** (0.006)

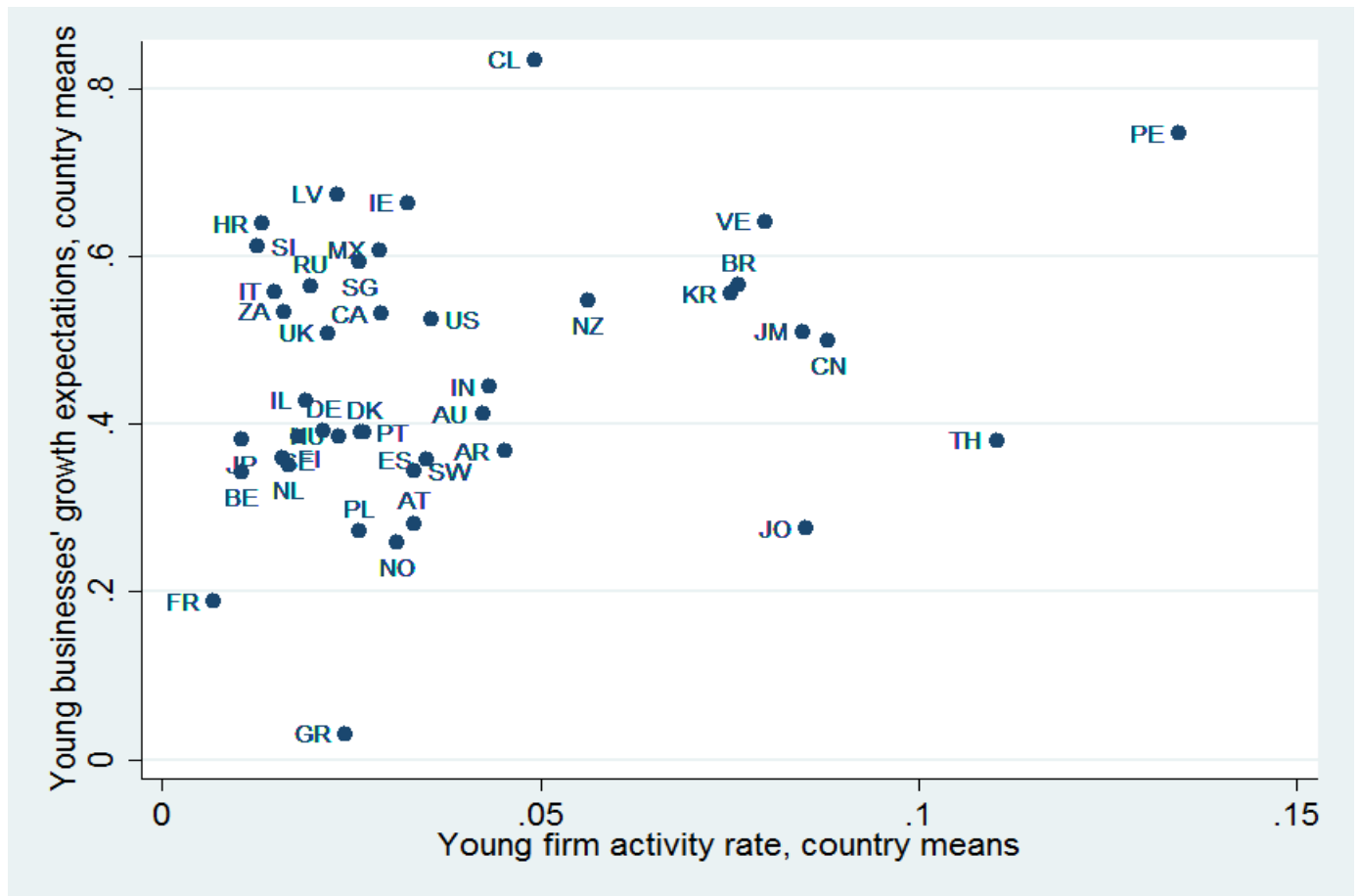
Standard errors in parentheses; $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; all variables with exception of dummy variables are standardised. Likelihood ratio test (model2 vs model1) $\chi^2(6)=9.34$; $\text{prob} > \chi^2=0.1554$. Likelihood ratio test (model3vs model1) $\chi^2(6)=6.12$; $\text{prob} > \chi^2=0.01$.

Fig.1. New businesses’ employment growth expectations: country effects in rank order with 95% confidence intervals



Source: GEM 2001-2006. Note: We calculated the intercepts and confidence intervals using the set of observations without 171 outliers (see discussion in section 3.5).

Fig. 2. Young businesses' Growth Expectations vis-à-vis Young business activity rate, country means



Source: GEM 2001-2006. Country abbreviations denote: AR – Argentina; AT – Austria; AU – Australia; BE- Belgium; BR- Brazil; CA- Canada; CL – Chile; CN – China; DE – Germany; DK – Denmark; ES- Spain; FI – Finland; FR – France; GR – Greece; HR – Croatia; HU – Hungary; IE – Ireland; IL – Israel; IN – India; IT – Italy; JM – Jamaica; JO – Jordan; JP – Japan; KR – South Korea; LV – Latvia; MX – Mexico; NL – Netherlands; NO – Norway; NZ – New Zealand; PE – Peru; PL – Poland; PT – Portugal; RU – Russia; SE – Sweden; SG – Singapore; SI – Slovenia; SW – Switzerland; TH – Thailand; UK – United Kingdom; US – United States; VE - Venezuela; ZA – South Africa.